

DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DIVISION OF WATERSHED MANAGEMENT

PROPOSED AMENDMENTS TO THE  
LOWER RARITAN/MIDDLESEX WATER QUALITY MANAGEMENT PLAN,  
MERCER COUNTY WATER QUALITY MANAGEMENT PLAN,  
MONMOUTH COUNTY WATER QUALITY MANAGEMENT PLAN,  
NORTHEAST WATER QUALITY MANAGEMENT PLAN,  
UPPER RARITAN WATER QUALITY MANAGEMENT PLAN AND  
SUSSEX COUNTY WATER QUALITY MANAGEMENT PLAN,

TO ESTABLISH 1 TOTAL MAXIMUM DAILY LOADS (TMDL's) FOR  
PHOSPHORUS FOR ROUND VALLEY RECREATIONAL AREA, HUNTERDON  
COUNTY

AND

TO ESTABLISH 48 TMDLs FOR FECAL COLIFORM FOR STREAM  
SEGMENTS THAT EXTEND INTO ESSEX, HUNTERDON, MERCER,  
MIDDLESEX, MONMOUTH, MORRIS, SOMERSET AND UNION COUNTIES,  
AS LISTED IN TABLE 1.

**Public Notice**

**Take notice** that the New Jersey Department of Environmental Protection (Department) is seeking public comment on proposed amendments to the Lower Raritan/Middlesex Water Quality Management Plan (WQMP), Mercer, and Monmouth Counties WQMP, Northeast WQMP, Upper Raritan WQMP, and Sussex County WQMP.

The first amendment would establish a total maximum daily load (TMDL) for phosphorus for the Round Valley Recreational Area, Clinton Township, Hunterdon County. The second amendment would establish 48 TMDLs for fecal coliform for stream segments that extend into Essex, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Somerset, and Union Counties, as listed in Table 1.

## **Background**

A TMDL represents the assimilative or carrying capacity of a waterbody, taking into consideration point and nonpoint source of pollutants of concern, natural background and surface water withdrawals. A TMDL quantifies the amount of a pollutant a water body can assimilate without violating a state's water quality standards and allocates that load capacity to known point sources in the form of wasteload allocations (WLAs), nonpoint sources in the form of load allocations (LAs), and, as applicable, reserve capacity and a margin of safety. A TMDL is developed as a mechanism for identifying all the contributors to surface water quality impacts and setting goals for load reductions for pollutants of concern as necessary to meet surface water quality standards (SWQS). TMDLs are required, under Section 303(d) of the Federal Clean Water Act, 33 U.S.C. 1313(d), to be developed for waterbodies that cannot meet water quality standards after the implementation of technology-based effluent limitations. TMDLs may also be established to help maintain or improve water quality in waters that are not impaired. Federal regulations concerning TMDLs are contained in EPA's Water Quality Planning and Management Regulations (40 CFR 130).

On September 16, 2002, the New Jersey Department of Environmental Protection (Department) and USEPA Region 2 entered into a Memorandum of Agreement (MOA), which superseded the previous MOA between the Department and EPA. Under the September 16, 2002 MOA, TMDLs for at least 100 pathogen-impaired streams are scheduled to be established by June 30, 2003. These amendments would establish 1 of the required TMDLs for eutrophic lakes, and 48 of the 100 required TMDLs for pathogen-impaired streams.

Each TMDL must be proposed and adopted by the Department as an amendment to the appropriate area-wide WQMP(s) in accordance with N.J.A.C. 7:15-3.4(g).

## **Amendment to establish phosphorus TMDLs to address eutrophic lakes**

The State of New Jersey's 2002 *Integrated List of Waterbodies* (35 N.J.R. 470 (a), January 21, 2003), identified an additional lake in the Raritan Water Region as being eutrophic, as indicated by elevated total phosphorus (TP), elevated chlorophyll-a, and/or nuisance macrophyte density. The proposed amendment would establish a total maximum daily load (TMDL) for TP that addresses eutrophication of the lake listed in Table 1.

**Table 1 Eutrophic Lakes for which Phosphorus TMDLs are being established**

<b>TMDL Number</b>	<b>Lake Name</b>	<b>Municipality</b>
1	Round Valley Recreational Area	Clinton Township

This TMDL serves as the foundation on which a restoration plan will be developed to restore eutrophic lakes and thereby attain applicable SWQS. A TMDL is developed as a mechanism for identifying all the contributors to surface water quality impacts and setting goals for load reductions for pollutants of concern as necessary to meet SWQS. The pollutant of concern for this TMDL is phosphorus, since phosphorus is generally the nutrient responsible for excessive productivity of inland lakes leading to cultural eutrophication. The Department's Geographic Information System (GIS) was used extensively to describe the lakes and lakesheds (drainage basins of the lakes).

In order to prevent impairment of recreational, water supply and aquatic life designated uses, the Surface Water Quality Standards define both numerical and narrative criteria that address eutrophication in lakes due to excessive nutrients. Phosphorus sources for each lake were characterized on an annual scale (kg TP/yr) for both point and nonpoint sources. Runoff from land surfaces comprises a substantial source of phosphorus into lakes. An empirical model, developed by K.H. Keckhow Ph.D. described in *Modeling Phosphorus Loading and Lake Response Under Uncertainty: A Manual and Compilation of Export Coefficients*, (Reckhow, K.H., M.N. Beaulac and J.T. Simpson, 1980, EPA 440/5-80-011), was

used to relate annual phosphorus load and steady-state in-lake concentration of total phosphorus. To achieve the goal of the TMDL, overall load reductions were calculated for each of the source categories. The implementation plan also calls for the collection of additional monitoring data and the development of a Lake Restoration Plan for each lake for which TMDLs are being established. This plan will consider what specific measures are necessary to achieve the nutrient reductions required by the TMDL, as well as what in-lake measures need to be taken to supplement the nutrient reductions required by the TMDL. In order to track effectiveness of remediation measures (including TMDLs) and to develop baseline and trend information on lakes, the Department will augment its ambient monitoring program to include lakes on a rotating schedule.

There are no point sources other than stormwater within the lakeshed of Round Valley Recreational Area. The TMDL identifies all the phosphorus contributions and establishes WLAs and LAs expressed as maximum annual loads for phosphorus necessary to meet surface water quality standards. WLAs were established for point sources of phosphorus, namely regulated stormwater runoff from medium/high density residential, low density/rural residential, commercial, industrial and mixed urban/other urban land uses. LAs were established for the major categories of nonpoint sources of phosphorus: runoff from nonurban land uses and air deposition onto the lake surface.

With the implementation of follow-up monitoring and development of Lake Restoration Plans through the watershed management process, the Department has reasonable assurance that New Jersey's Surface Water Quality Standards will be attained for these lakes. Activities directed in the watersheds to reduce nutrient loadings shall include a host of options, including but not limited to, education projects that teach best management practices, approval of projects funded by CWA Section 319 Nonpoint Source (NPS) Grants, recommendations for municipal ordinances to limit feeding of wildlife and impose pooper-scooper requirements, and stormwater control measures.

The proposed amendment consists of a detailed report that provides the technical and regulatory basis for these TMDLs, and is available from the Department as described below.

### **Amendment to establish 48 fecal coliform TMDLs to address impaired streams**

The State of New Jersey's *2002 Integrated List of Waterbodies* (35 N.J.R. 470 (a), January 21, 2003) identified numerous waterbodies in the Raritan Water Region as being impaired by pathogens, as evidenced by the presence of high fecal coliform concentrations. The proposed amendment would establish 48 TMDLs addressing fecal coliform loads to the waterbodies identified in Table 1.

**Table 1 Fecal coliform-impaired stream segments in the Raritan Water Region, identified in Category 5 of the 2002 Integrated List of Waterbodies, for which fecal coliform TMDLs are being established.**

<b>TMDL Number</b>	<b>WMA</b>	<b>Station Name/Waterbody</b>	<b>County(s)</b>
1	7	WB Elizabeth River Near Union	Essex Union
2	7	Elizabeth River At Ursino Lk At Elizabe	Union
3	7	WB Rahway River At Northfield Ave. At West Ora	Essex
4	7	Rahway River Near Springfield	Essex
5	7	Rahway River At Rahway	Union
6	7	Robinson Branch At Scotch Plains	Union
7	7	Robinson Branch At St Georges Av At Rahway	Middlesex Union
8	8	Stony Brook At Fairview Avenue At Naughtright	Morris
9	8	SB Raritan River At Middle Valley	Morris
10	8	SB Raritan River Arch St At High Bridge	Hunterdon
11	8	Spruce Run At Newport	Hunterdon
12	8	Spruce Run Near Glen Gardner	Hunterdon
13	8	Mulhockaway Creek At Van Syckel	Hunterdon
14	8	SB Raritan River At Stanton Station	Hunterdon
15	8	SB Raritan River At Three Bridges	Hunterdon
16	8	Neshanic River At Reaville	Hunterdon
17	8	SB Raritan River At South Branch	Somerset
18	8	NB Raritan River Near Chester	Morris
19	8	NB Raritan River At Burnt Mills	Somerset
20	8	Lamington River Near Ironia	Morris
21	8	Lamington River Near Pottersville	Morris
22	8	Rockaway Creek At Whitehouse	Hunterdon
23	8	Lamington River At Burnt Mills	Somerset

<b>TMDL Number</b>	<b>WMA</b>	<b>Station Name/Waterbody</b>	<b>County(s)</b>
24	8	Chambers Brook At North Branch Depot	Somerset
25	8	NB Raritan River Near Raritan	Somerset
26	9	Peters Brook At Rt 28 At Somerville	Somerset
27	9	Raritan River At Manville	Somerset
28	9	Raritan River At Queens Bridge	Somerset
29	9	Bound Brook At Route 28 At Middlesex	Middlesex
30	9	Green Brook At North Plainfield	Middlesex Somerset
31	9	Bound Brook At Middlesex	Somerset
32	9	Matchaponix Brook At Englishtown	Middlesex
33	9	Manalapan Brook At Federal Rd Near Manalapan	Middlesex
34	9	Manalapan Brook Near Spotswood	Middlesex
35	9	McGolliard Brook At Main St In Englishtown	Middlesex
36	9	Lake Topanemus At Pond Rd In Freehold	Middlesex
37	9	Wemrock Brook At Rt #9 (Before Pipes) In Freeh	Middlesex
38	9	Weemaconk Creek At Main St In Manalapan	Middlesex
39	10	Millstone River Near Manalapan	Mercer Middlesex Monmouth
40	10	Millstone River At Grovers Mill	Mercer Middlesex Monmouth
41	10	Cranbury Book Near Prospect Plains	Middlesex Monmouth
42	10	Stony Brook At Princeton	Mercer
43	10	Duck Pond Run At Clarksville	Mercer
44	10	Heathcote Brook At Kingston	Middlesex Somerset
45	10	Bedens Brook Nr Rocky Hill	Somerset
46	10	Pike Run Near Rocky Hill	Somerset
47	10	Millstone River At Blackwells Mills	Somerset
48	10	Millstone River At Weston	Somerset

These forty-eight TMDLs will serve as management approaches or restoration plans aimed at identifying the sources of fecal coliform and for setting goals for fecal coliform load reductions in order to attain applicable surface water quality standards (SWQS).

As stated in N.J.A.C. 7:9B-1.14(c) of the New Jersey Surface Water Quality Standards for FW2 waters, “Fecal coliform levels shall not exceed a geometric average of 200/100 ml nor should more than 10 percent of the total samples taken during any 30-day period exceed 400/100 ml.” Nonpoint and stormwater sources are the primary contributor to fecal coliform loads in these streams and can include storm-driven loads transporting fecal coliform from sources such as

geese, farms, and domestic pets to the receiving water. Nonpoint sources also include steady-inputs from sources such as failing sewage conveyance systems and failing or inappropriately located septic systems. Because the total source contribution from sewage treatment plants is an insignificant fraction of the total load, these fecal coliform TMDLs will not impose any change in current practices for Sewage Treatment Plants and will not result in wasteload allocations or changes to existing effluent limits for these facilities.

Using ambient water quality data, summer and year-round geometric means were determined for each waterbody segment in the Raritan water region included on Sublist 5 of the 2002 *Integrated List of Waterbodies* (also known as the 303 (d) list) based on water quality monitoring conducted during the water years 1994-2000. Given the two-part surface water quality criteria of 200 CFU/100 ml and 400 CFU/100 ml in FW2 waters, computations were necessary for both criteria which resulted in two values for percent reduction for each stream segment. In order to assure compliance with the SWQS the higher (more stringent) percent reduction value was selected as the TMDL and will be applied to nonpoint and stormwater sources as a whole.

The TMDL report provides extensive information to assist with more specific identification of sources. Load duration curves, which are useful in identifying and differentiating between storm-driven and steady-input sources, are provided for stream segments for which streamflow gauge information is available. The Department, in collaboration with the local Public Advisory and Technical Advisory Committees, narrowed down the scope of the potential primary sources of fecal coliform contamination to these waterbody segments to the following:

Non-Human Sources of Fecal Coliform

- Canada geese, pest waterfowl and other wildlife
- Pet Waste
- Stormwater basins which can act as accumulation points of fecal matter (from pets, waterfowl and wildlife)

- Direct stormwater discharges to waterbodies
- Farms, zoos

#### Human Sources of Fecal Coliform

- Malfunctioning or older improperly sized septic systems
- Failing Sewerage Conveyance Systems
- Improper garbage storage and disposal

In addition, other potential sources of fecal contamination specific to each stream segment are identified in the TMDL report. When bacterial sources are adequately identified, Best Management Practices (BMPs) specified in the TMDL Report for each source category will be applied to reduce bacterial loading to meet the SWQS. When bacterial sources are not easily identifiable, the TMDL requires bacterial source tracking (advanced chemical, biochemical and molecular monitoring methods) to be used in conjunction with the resulting percent load reduction and load duration curves to further identify pathogen sources.

TMDLs include both short-term and long-term management strategies. Short-term management strategies include existing projects funded by the Department to address fecal impairments to an impaired waterbody. These projects for the most part include stream bank restoration projects, and implementation of BMPs. Nonpoint Source Pollution Control and Management Implementation Grants have been awarded by the Department since 1995 to local and regional organizations for projects that implement management practices for nonpoint source control.

While short-term management measures will begin to reduce sources of fecal coliform in the Raritan Water Region, additional measures will be needed to verify and further reduce or eliminate these sources. Long-term management strategies are provided for each source category. Long-term strategies include,

for instance, the development of Stormwater Management Plans and Canada Goose Damage Management Plans.

The proposed amendment consists of a detailed report that provides the technical and regulatory basis for these TMDLs, and is available from the Department as described below.

### **Public Comment Information**

**This notice** is being given to inform the public that a plan amendment has been proposed for the Lower Raritan/Middlesex WQMP, Mercer and Monmouth Counties WQMPs, Northeast WQMP, Upper Raritan WQMP and Sussex County WQMP. All information related to this proposed amendment is located at the Department, Division of Watershed Management, PO Box 418, 401 East State Street, Trenton, New Jersey 08625-0418. If you wish to receive a copy of the draft TMDL that establishes 48 fecal coliform TMDLs and 1 phosphorus TMDL call the Division of Watershed Management at (609) 633-1441 or download the files from: <http://www.state.nj.us/dep/watershedmgt/publications.htm>. The Department's file is available for inspection between 8:30 a.m. and 4:00 p.m., Monday through Friday. An appointment to inspect the documents may be arranged by calling the Division of Watershed Management at (609) 633-3812. Additional copies of the amendments may be also obtained by calling this number. An electronic copy of the TMDL Report may be requested via electronic mail sent to: [H20SHED@dep.state.nj.us](mailto:H20SHED@dep.state.nj.us).

Interested persons should submit written comments on the proposed amendment to Barbara Hirst, Bureau Chief, New Jersey Department of Environmental Protection, Division of Watershed Management, P.O. Box 418, 401 East State Street, Trenton, New Jersey, 08625. All comments must be submitted within 15 days following the public hearing noted below. The Department shall consider all

comments submitted prior to the close of the comment period in reviewing the proposed amendment.

The Department requests that commenters who have access to current word processing software additionally submit comments on this proposed amendment electronically using a 3½-inch diskette mailed to the address above or via electronic mail sent to the Department at [H20SHED@dep.state.nj.us](mailto:H20SHED@dep.state.nj.us). The preferred word processing software for submitting comments is Microsoft Word for Windows 97. Any commenter who wishes to use other software is encouraged to contact Ms. Hirst to check for compatibility (609-633-1441). MacIntosh formats should not be used. Submission of a diskette or via electronic mail in addition to the written comment is not required.

The Department is holding a public hearing on the proposed amendments at the following time and place:

Date: May 22, 2003  
Time: 7:00 pm. The public hearing will be held until 9:00 pm or the end of testimony, whichever is earliest.  
Location: Elk's Club, New Brunswick  
40 Livingston Avenue  
New Brunswick, New Jersey

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Lawrence J. Baier, Director  
Division of Watershed Management  
Department of Environmental Protection

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Date

